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[54] **AUTOMATIC FUELING SYSTEM AND COMPONENTS THEREFOR**

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[58] **Field of Search** ..... 141/94, 98–231, 141/232, 250, 311 R, 351, 352, 387, 388; 901/6, 16, 46, 47; 342/42, 140

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[57] **ABSTRACT**

An automatic fueling system includes a pump having a telescoping arm capable of placement in three-dimensional space, a flexibly mounted nozzle on the end of the arm and a docking cone to mate with the fuel port on a vehicle. A camera provides a view of the side of the vehicle on a monitor with guides visible to the operator of the vehicle to assist in locating the vehicle within range of the pump. A light and a camera located adjacent to the nozzle are used to recognize retro-reflective light from an annular target about the intake port. Multiple approximations of the distance and location of the intake port are made with the nozzle moving closer to mating with the intake port. A data link is provided through the mated nozzle with a keypad accessible by the vehicle operator. The vehicle includes a control actuator which selectively couples actuator cables associated with the fuel door and the fuel inlet valve with the emergency brake cable to engage the emergency brake, open the fuel door and open the inlet valve. A vacuum system on an evaporation canister insures that vapor is drawn from the fuel tank as it is being displaced by incoming fuel.

5 Claims, 8 Drawing Sheets